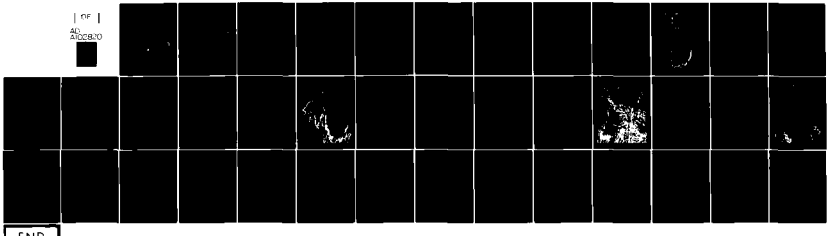
AD-A102 820 ARMY WAR COLL STRATEGIC STUDIES INST CARLISLE BARRACKS PA F/G 8/6
MILITARY GEOGRAPHY OF THE SINO-SOVIET BORDER.(U)
JUL 81 K E MOORHEAD, P A KELLY, B D KURLAND

UNCLASSIFIED NL



END
DATE FILMED
9-81
DTIC

STRATEGIC STUDIES INSTITUTE
US ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

31 JULY 1981

ACN 81047

MILITARY GEOGRAPHY OF THE SINO-SOVIET BORDER

434TH MILITARY INTELLIGENCE DETACHMENT (STRATEGIC)

SPECIAL REPORT

STRATEGIC STUDIES INSTITUTE
US ARMY WAR COLLEGE
Carlisle Barracks, Pennsylvania 17013

MILITARY GEOGRAPHY OF THE SINO-SOVIET BORDER

by

434th Military Intelligence Detachment
(Strategic)

Kenneth E. /Moorhead Peter A. /Kelly
Burton D. /Kurland Alan D. /Tompkins
Bernard D. /Tolassi

31 July 1981

DISCLAIMER

The views of the authors do not purport to reflect the position of the Department of the Army or Department of Defense.

FOREWORD

This report was prepared by the 434th Military Intelligence Detachment (Strategic), which is assigned the mission of supporting the US Army War College by the preparation of studies and analyses of strategic military significance. Operational training guidance is provided by the Strategic Studies Institute. Mr. William V. Kennedy served as project coordinator.

This report was prepared by LTC Kenneth E. Moorhead, LTC Peter A. Kelly, MAJ Burton D. Kurland, MSG Alan D. Tompkins, SFC Bernard D. Tolassi, SSG Joseph C. Mike, and SSG Robert W. Cooper.

The views, opinions, and/or findings contained in this report are those of the authors and should not be construed as an official Department of the Army position, policy or decision. The report does not reflect the official view of the Strategic Studies Institute, the US Army War College, the Department of the Army, or Department of Defense.

CHARLES R. WALLIS
Colonel, Infantry
Acting Director, Strategic Studies Institute

SUMMARY

Relations between the People's Republic of China (PRC) and the Soviet Union have been strained for some 20 years. Evidence of this train abounds in the harsh political rhetoric directed toward the Soviets by the Chinese, in their continuing attempts to paint the Soviets as "hegemonists" to Third World and other countries, and even in military confrontations in disputed border areas. In view of this prolonged hostility, and China's frequently-repeated statements on the inevitability of war between the PRC and USSR, some appreciation of likely Soviet invasion routes, and the geographic factors influencing them, is important.

Postulating a Soviet attack against the PRC, this study provides background on Soviet military formations and doctrine. Then the geography of the Sino-Soviet border is analyzed with respect to military considerations, and likely invasion routes are depicted, both for general and limited-objective attacks. The study concludes that geography is no significant impediment to the Soviet's ability to launch devastating conventional force attacks against the PRC in virtually any region along the border, or several regions, at any time.

MILITARY GEOGRAPHY OF THE SINO-SOVIET BORDER

INTRODUCTION

The purpose of this report is to provide information concerning the military geography of the Sino-Soviet border. It is intended for the reader who has no specialized knowledge of the area or of military technology but who wishes to go a step beyond daily news coverage of the Sino-Soviet relationship.

As the term implies, "military geography" relates to the effect of such factors as terrain and climate on the conduct of military operations. Such additional factors as man-made features and population are also considered to the extent that they are likely to affect military operations. Where necessary to explain the likelihood of certain invasion routes, likely strategic objectives are discussed.

Although the title would indicate a concern about the effects of military geography on both sides of the border, the perspective of this study mainly involves a potential strategic attack by Soviet forces on the People's Republic of China (PRC). Although Chinese forces may possess a limited ability to attack the Soviet Union, any realistic appraisal of the threat in this area for the present would focus on a projected attack by the Soviets.

For the purpose of the study, it should be noted that the Soviet military forces apt to be employed in such an attack are modern, well-trained, and highly mobile. Of special importance is the Soviet capability for airborne, airmobile (i.e., helicopter-borne), chemical, biological, and nuclear operations on a large scale, which could drastically change the scope, tempo, and effect of a Sino-Soviet war. By contrast, the Chinese People's Liberation Army (PLA), armed with mostly obsolete or obsolescent weapons, is primarily trained and

equipped for a protracted "people's war."[1] The preponderance of manpower is still in infantry (115 of the 129 Main Force, i.e., regular divisions), and only 11 Chinese divisions are armored.[2] The PLA's ability to move and to communicate is severely limited. It has little defense capability against a large-scale nuclear, chemical, or biological attack. The Soviets have the ability to gain air supremacy in all areas required within a very short time.

In accordance with the basic strategic assumption underlying the study, it may be helpful to outline briefly the Soviet doctrine on offensive operations. The Soviet Army conducts strategic military operations on the front, roughly the equivalent of a US Army group. A typical front may consist of three or four combined arms armies, a tank army, a tactical air army, and support units. The combined arms army is the basic Soviet army in the field. It consists of up to five divisions, tank or motorized rifle. Whether or not a particular army is designated as a combined arms army or tank army depends on its having a preponderance of motorized rifle or tank divisions (all Soviet infantry divisions are mechanized). An offensive front would have an appropriate complement of support units, including massive artillery formations, with as many as seven armies (up to 30 combat divisions). A strategic offensive would likely be conducted with several fronts.

Front operations may be of two basic types: an attack along one or more axes to split and defeat the enemy force, or an attack along converging axes to envelop the enemy. Soviet military doctrine stresses the offensive. It characterizes operations by rapid build-up, echelonment, massing of forces and fires, and continuous attack, night and day, in all weather. Offensive forces are employed in two echelons, with the bulk of combat power forward. The second echelon is used to overcome enemy elements bypassed by the first. Furthermore, Soviet doctrine emphasizes deception, surprise, massive use of

artillery and tanks, and rapid advance with its mechanized infantry.

Depending on terrain and composition of the front, it may have a zone of advance up to 300 kilometers wide. In a typical three-army front, the force conducting the main attack may have a frontage (conventional sense) of up to 50 kilometers, with the supporting armies having fronts of up to 80 kilometers. A divisional front in such a formation would be about 20 kilometers. The ultimate objective in front operations is the seizure of key political or economic centers deep in the enemy rear, with concurrent destruction of defending military forces. Soviet doctrine considers it essential to destroy enemy nuclear delivery systems, even during the conventional phase of operations.

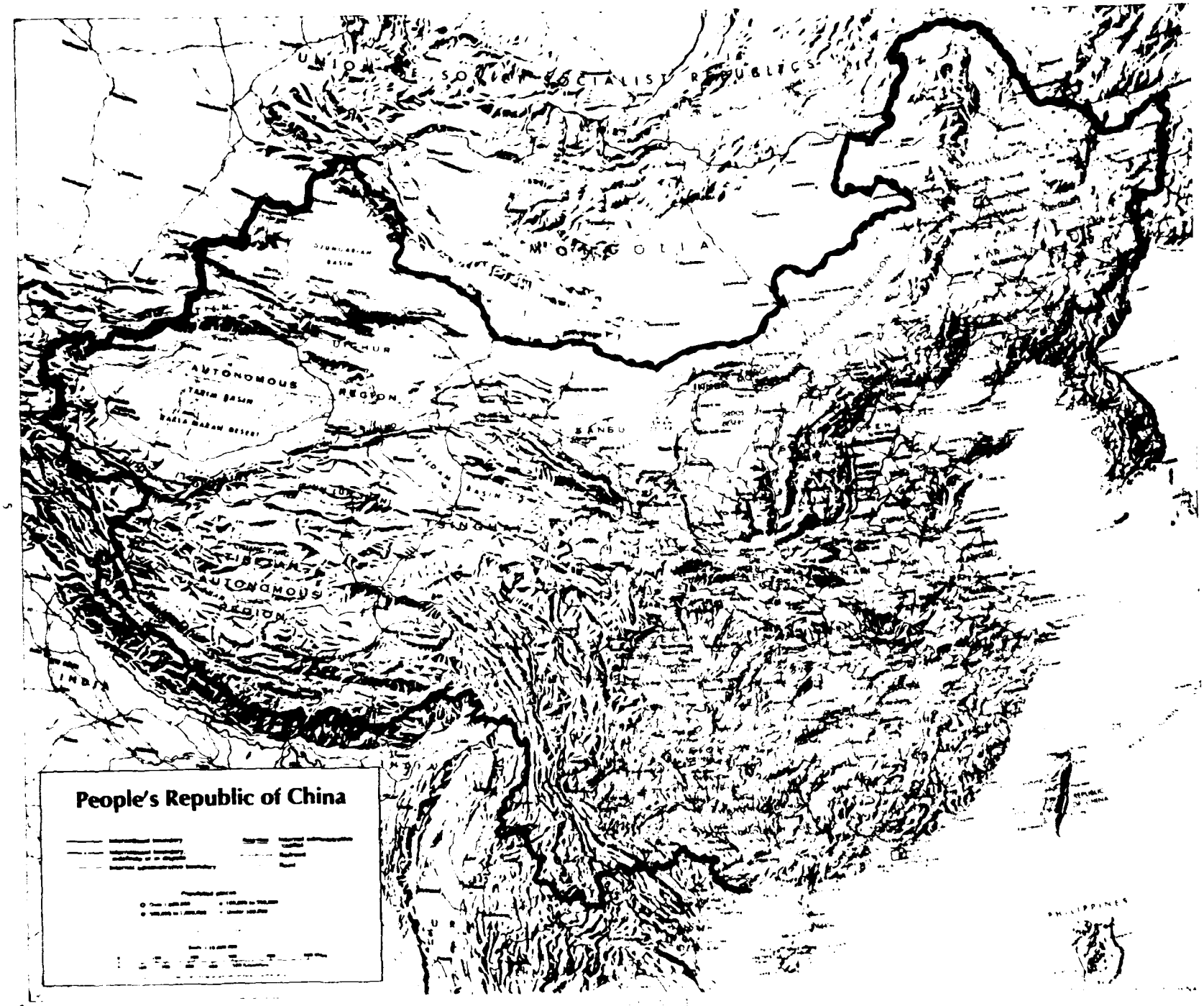
Soviet tanks and armored personnel carriers (APCs) have speeds of up to 30 miles (50 kilometers) per hour and ranges of up to 435 miles (725 kilometers), carrying extra fuel. Most motor transport has a cross-country capability, and airlift/helicopter resupply capabilities are steadily improving. The main supply base for a front is located near rail lines 150 to 200 kilometers (90 to 120 miles) from the rear boundaries of the divisions and is displaced forward when and as required. A division can carry about a five-day supply of ammunition, petroleum/oil/lubricants (POL), and rations. Any improvements the Soviets have made on this standard logistic procedure could have a major influence on the pattern of an attack.

Though the Soviets have no specially designated mountain troops, regular troops will fight in mountains as necessary. With regard to water obstacles, tanks equipped with snorkels (submerged fording kits) can ford to a depth of 5.5 meters (17 feet) in a current up to four meters per second (13 feet per second). The Soviet engineer units have bridging capabilities that include 390-foot class 60 (i.e., capable of carrying 60-ton loads) tactical bridges, and track vehicle-launched 40 and 68-foot bridges. All APCs are amphibious.

With respect to special operations, the Soviets currently have the largest airborne force in the world, eight divisions. They have developed highly effective airborne and airmobile (helicopter) techniques for support of ground operation by armored and motorized rifle troops. Airmobile forces, supported by attack and assault helicopters, destroy or neutralize airfields, command posts and logistical depots, and capture key terrain objectives, such as bridges or river crossings. Amphibious operations are also becoming an increasingly important capability, as evidenced by the ten-fold increase in strength of the Soviet naval infantry (marines) within the past decade. According to known Soviet doctrine, amphibious operations would normally be carried out in conjunction with an airborne or airmobile assault. Of a total 173 divisions, the Soviets presently have 43 stationed along the Sino-Soviet border, six of which are tank divisions. Three more divisions are stationed in the Mongolian People's Republic.[3] Central to the current Soviet advantage over China, however, is its superiority in air and missile forces. The latter is not only a quantitative, but a qualitative, advantage to an overwhelming degree. These advantages have a major influence on the manner in which the Soviets might make use of the geography of the border region. In particular, superiority in air and missile power make it possible for a combination of Soviet airborne and airmobile forces to control vast areas by seizing key transportation hubs, then immobilizing Chinese forces in unoccupied areas through use of air and missile-delivered nuclear weapons. Similar advantages are conferred by increasing Soviet power at sea, whereby the Soviets could now act with relative facility against the China coast.

STRATEGIC PERSPECTIVE

(See Figure 1) The Soviet Union and the Chinese People's Republic share more than 4,000 miles (6900 kilometers) of land border in two segments of


People's Republic of China

aproximately 1850 and 2300 miles (3080 and 3830 kilometers), separated in the central area by the Moscow-dominated Mongolian People's Republic (MPR). Moreover, increasing Soviet seapower now extends the land frontier in a military sense for hundreds of miles along the North China Coast. Soviet access to Cam Ranh Bay in Vietnam will have the effect of extending the military frontier to the South China Coast. Although in an area of extremely difficult terrain, Soviet occupation of Afghanistan adds another segment of the border toward which China must look with some apprehension.

In the west, the frontier arbitrarily cuts across ethnic communities. On both sides of the boundary, the population consists of a number of nationalities, but is predominantly Islamic. The Soviets have had problems with their Islamic minorities in the past, and any indication of a widespread Islamic movement could be used as a pretext for attempting to extend control over the Xinjiang-Uygur (Sinkiang-Uighur) Autonomous Region on the Chinese side of the border. Just such a situation was cited in a recent book by the presumed KGB agent, Victor Louis, as "justification" for a Soviet attack on China.[4]

In the east, Manchuria, with its wealth of resources and geographic location, has traditionally been a meeting ground for the interests of Russia, China, and Japan. The tension in this area between the Soviets and Chinese still exists and is likely to continue unabated for the foreseeable future. Remaining are a number of unresolved disputes involving territorial losses which the Chinese regard as having been imposed on them under the "unequal treaties" of the tsars. Moreover, the Chinese view Russian development of the Maritime Province and influence over North Korea as further attempts to encircle China. On the Soviets' part, they view Manchuria, apart from its industrial value, as a potentially dangerous salient projecting into Siberia and threatening Russian plans for the development of that region. Chinese military operations launched from Manchuria could pose a serious threat to the

Trans-Siberian Railway and the important base of Vladivostok. (Loss of this Trans-Ussuri region would impede if not imperil Soviet control of all territory east of the Ural Mountains.) Although of less immediate concern, Russian strategists dating from General Alexei Kuropatkin in the early part of this century have feared an attack through Dzungaria, on the border of Chinese Xinjiang and Soviet Kazakhstan, that could cut the Russian empire in half.

Thus, the areas of dispute between the USSR and the PRC transcend ideological issues. Owing to their geographic weld, the two states now confront one another over simmering issues, many of which each regards as fundamental to its national interests and security.

REVIEW OF THE BORDER GEOGRAPHY

In discussing the border geography from the military perspective the PRC is used as the principal frame of reference. The border is divided into three segments: Northwest (Xinjiang--Turkestan) (Sinkiang--Turkestan);[5] Central (Mongolia); and Northeast (Manchuria). They are discussed in that order. Included in the discussion of each section is a description of probable principal Soviet invasion routes into the area. However, for easier understanding, it is necessary to postulate a plausible Soviet scheme for an attack against the POC.

The strategic character of the Sino-Soviet border is determined by the huge salient represented by Mongolia, a Soviet ally. To the West, on the Chinese side are the Xinjiang-Uygur (Sinkiang-Uighur) and Xizang (Tibet) Autonomous Regions, Qinghai (Tsinghai) Province and half of Gansu (Kansu) Province. To the East are Inner Mongolia and Manchuria. This eastern region, with its rich industrial potential and the access it provides to the administrative center of the PRC, is also the only region posing a strategic military threat to the USSR. It is clearly the most important potential strategic objective of the Russians. This is particularly so if it is assumed that the

principal Soviet objective is to block China's progress to "superpower" status, rather than to conquer China. However, any such attack would also have to include plans for control of the area west of Mongolia. The center sector, south of Mongolia, would have to be controlled, or at least neutralized (i.e., denied to Chinese military use), because of the great potential of that area as a base for eventual retaliatory operations against Soviet forces occupying northeast China. Moreover, control over Xinjiang would be important to provide a buffer in front of the sensitive Russian Dzungarian region. Thus, the generally accepted expectation is that a main Soviet strategic thrust would be directed at seizure of Manchuria and Beijing, with secondary thrusts aimed at establishing control over central China and the northwest. Nevertheless, history and the Soviet doctrinal emphasis on deception and surprise suggest that something different might well occur.

Northwest China (Xinjiang-Turkestan). The Xinjiang-Uygur (Sinkiang-Uighur) Autonomous Region occupies a pivotal position in central Asia, sharing over 1800 miles of boundary with the Soviet Union. Historically, the Chinese have always tried, directly or indirectly, to guard the region against potential enemies by maintaining control over its key routes and areas. Xinjiang's geography is one of extremes: towering mountain massifs offset by vast, low-lying desert wastes; annual temperature ranging from 130 degrees F. in the Turpan (Turfan) Depression to -40 degrees F. in the Junggar (Dzungarian) steppes; an overall average of under 2 inches annual precipitation in the Tarim Basin and only one-fifth of an inch in some of its southern portions, to name a few. It is perhaps no wonder that, although Xinjiang comprises one-sixth of China's land mass, barely one percent of the total population is to be found there.

The majority of the Xinjiang-Uygur Autonomous Region's 11 million or so

inhabitants are not Han Chinese, but are Turkic-descended Uygurs (Uighurs), nomadic herdsmen who have traditionally shared the mountain grazing areas with their ethnic kin in Russian Turkestan. Out of concern for the internal security problem presented by the Uygurs' potential vulnerability to Soviet propaganda, the Beijing government has, particularly since 1960, sent great numbers of Han Chinese workers and party cadres to develop the region. This massive forced migration has resulted in the Han Chinese population now approximating that of the Uygurs.

The westernmost segment of the Sino-Soviet boundary extends north and northeast from the Afghanistan tripoint in the eastern Pamirs, commonly called the "roof of the world," from which the world's highest mountains extend in all directions. To the south and the southeast lie the Karakorum, Hindu Kush, Himalaya, and Kunlun mountains, separating Pakistan, Kashmir, Nepal and India from Xinjiang and Xizang (Tibet). To the north and northeast, the vast complex of mountain systems extends along and across the international boundaries.

In the Pamirs, the greatest elevations are in the west, where the highest peaks attain more than 25,000 feet. Both the valleys and the ridges, however, are characterized by a general flatness, forming a vast partially peneplaned area in which broad, roughly parallel valleys averaging 12 to 13 thousand feet elevation and varying from 5 to 10 miles wide are separated by residual ridges extending 4 to 5 thousand feet higher than the valley floors. Glaciers and melting snows have left only a mantle of rock and debris on the ridges and have strewn the resulting alluvium along the valleys. These "pamir" characteristics extend northward into the Alay (Alai) (not to be confused with Altay) ranges but, unlike the true Pamirs, lateral extension of the ranges is relatively limited.

North of the Pamir-Alay group, the frontier traverses the Tian (Tien) Shan

(Celestial Mountains), northernmost of the great mountain massifs radiating from the Pamir core. Because of their general east-west alignment, the Tian Shan eventually lead away from the political frontier to form instead the natural barrier between the two major physical components of Xinjiang: the Junggar (Dzungarian) Basin in the north, and the vast deserts of the Tarim Basin in the south. Formed of old limestone and slate outcroppings, the Tian Shan are sharply folded and faulted into a series of parallel ranges alternating with shallow basins. Most of the basins lie at about 10 thousand feet and the ridges average 3 to 6 thousand feet higher. The highest peaks, most of which lie in the south portion, reach about 25,000 feet. In the north, the ranges are lower and the valleys considerably wider. Among these, the lowlands of the Tekes and Ili rivers form distinct natural routes across the Soviet frontier. North of the Ili, the Tian Shan give way to the Junggar (Dzungarian) Alatau, the Birlik Tau, the Saur, and the Tarbagatay, block mountain systems shielding the Junggar Basin from the west.

The Junggar Basin itself is a triangular wedge of mostly steppe land lying between the Tian Shan and the Altay (Altai) mountains to the north along the Mongolian border. The average annual rainfall of 10 inches (somewhat more in the mountains) is enough to sustain the extensive grasslands which support the Kazakh, Mongol, and Kirghiz nomads and their herds of cattle, sheep, and horses. In parts of the Basin, there is dry farming of wheat and other grains, and there are extensive irrigated areas containing wheat, cotton, sugar beets, and rice, particularly along the Manas (Ma-na-ssu) River, which flows northward out of the Tian Shan and eventually dies in the Steppes.

Xinjiang's most striking physical feature, however, is the Tarim Basin. Sharply defined by the mountains almost encircling it, the Tarim Basin comprises a bit more than half the Autonomous Region, and it in turn is dominated by the seemingly endless sands of the Taklimakan (Takla Makan) Desert and the salt

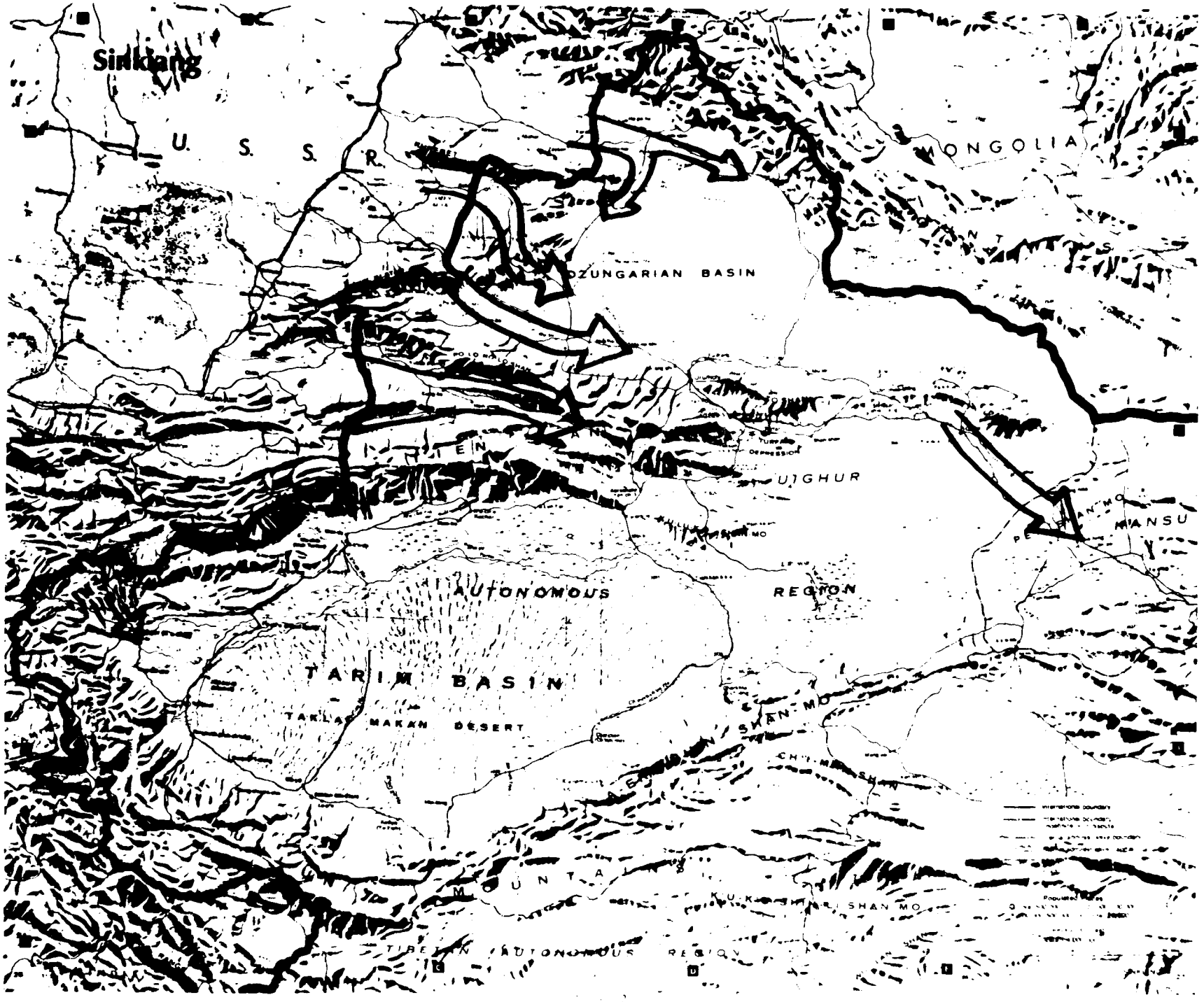
wastes of Lop Nur (Lop Nor). The snow-fed streams flowing in from the encircling mountains create many highly fertile oases which sustain life along the desert's edge. Narrow bands of poplar, willow, and often lush undergrowth along the watercourses gradually change to drought- and salt-resistant scrub and grass, which in turn disappear with the streams into the desert sands. For centuries, the oases have been populated mainly by Uygurs, who have developed a complex system of wells and canals to water cotton, fruit, vegetables, and a variety of grains. In recent years, the PRC has expanded the agricultural areas, particularly along the Tarim River on the northern rim of the Basin, where numbers of earthen dams are being built to capture water for irrigation, fishing, and drinking.

It is the mountains along this portion of the boundary that present the most formidable obstacles to movement of ground forces. Because of associated air density problems, their extreme altitudes present considerable hazards to penetration by airmobile forces as well, effectively channeling such operations into avenues which shall be discussed later. As previously noted, altitudes range upwards of 25,000 feet in the Pamirs, only gradually dropping to 15,000 feet in the Altay along the Mongolian Border. On both sides, the mountains fall steeply to the lowlands, Xinjiang's Tarim and Junggar basins in the east, and the steppe and basin region of Russian Fergana and Khirgizia to the west. In contrast to the mountain heights, the average elevation of the lowlands is about 3,000 feet, though portions of Russian Turkestan and the Xinjiang basin regions lie much lower (down to 505 feet below sea level in the Turpan Depression). The result is that, with few exceptions, passes allowing transit through the mountains lie at 13 to 14 thousand feet, and though numerous trails and paths crisscross the frontier, there are few major routes.

In ancient Turkestan, which straddled the present political frontier, the

Silk Route followed from oasis to oasis along either rim of the Taklimakan Desert or Tarim Basin, before merging at Kashi (Kashgar) at the western edge of the Basin and then continuing northwest across the Tian Shan into the Central Asian lowlands. Many portions of the old routes remain as major segments of the present road net. Though many of these old roads are poorly maintained, new roads have been built, especially in the north, providing access to strategic areas near the frontier. Moreover, a significant development in the 1960's was completion of the Trans-Xinjiang Railroad as far as Urumqi (Urumchi), the only major industrial city in the Autonomous Region. However, the original plan to link the Trans-Xinjiang through the "Dzungarian Gate" with the Soviet rail system on the border near Druzhba was scrapped when relations between the two powers deteriorated in the sixties. Located about 450 kilometers (275 miles) from the boundary, Urumqi manufactures iron, steel, cement, fertilizers, and textiles. Its population has grown from 80,000 in the 1940's to almost a million in 1980.[6]

Historically, the major invasion route in either direction has been through the Junggar Basin (Figure 2). In modern times, as in ancient, an invasion force driving southeast through the Basin and the Gansu (Kansu), or Hoxi (Ho-si), Corridor to the north of the Qilian Shan (Chi Lien Shan) would strike straight at the major population and administrative centers of Central China. There are three routes across the frontier which, because of their relative ease of access, have traditionally formed principal avenues into the Junggar Basin from Russian Turkestan. From south to north, they are (1) the valleys of the Tekes and Ili Rivers; (2) from Druzhba through the "Dzungarian Gate"; and (3) the line Zaysan/Jeminay (Chi-mu-nai)/Burqin (Pu-ehr-chin), to the east of Lake Zaysan, in the wide lowland valley (1200-1500 feet) of the Chernyy Irtysh which crosses the frontier at this point.


Sinkiang
U. S. S. R.
MONGOLIA
DZUNGARIAN BASIN
UIGHUR
AUTONOMOUS
REGION
TARIM BASIN
TAKLA MAKAN DESERT
KUNLUN SHAN MO
TIBETAN AUTONOMOUS REGION

Farther south, the Tekes and Ili rivers have for centuries provided relatively easy access in either direction north of the Tian Shan, between Yining (I-ning), or Gulja (Kuldja), on the Chinese side and Alma-Ata and Frunze on the Russian. A road crosses the frontier between Panfilov and Huocheng (Ho-ch'eng), after which it forks, the northern branch eventually connecting with Urumqi. The southern branch passes through Yining, then southeast to Yanqi (Yen-ch'i), or Karashahr, where it connects with other routes at the northeast rim of the Tarim Basin.

The Dzungarian Gate is a narrow (approximately 3-5 miles wide) 10 mile long gorge lying at only 700 feet elevation in rugged terrain between lakes Alakol' and Ebinur (Ai-pi). From ancient times, it has been regarded as the major invasion route into the Junggar Basin, but there is now general agreement that the route more often used was about 200 km. (125 mi.) to the north. In any case, the latter avenue, along the line Urdzhar/Bakhty/Tacheng (T'a-ch'eng), or Qoqek (Chuguchak), is more advantageous from the standpoint of a modern mechanized force, as there is a road, more room for cross-country maneuver, and an airfield at Tacheng.

The third avenue, through the Chernyy Irtysh valley, of the three mentioned, probably provides the most favorable terrain for large-scale mechanized operations, with or without airmobile support. The valley is broad and flat, Burqin is the hub of main roads leading in five directions, and the steppelands of the Junggar Basin provide ample terrain for cross-country operations.

What makes the Junggar Basin an attractive possibility as an axis of advance into China is not that there are many worthwhile strategic targets there, but rather that the whole of North and Northwest China, which comprises the Lanzhou and Xinjiang Military Regions, is lightly held, according to estimates in the open press, by about 12 Local Force and 13 Main Force divisions,

mostly infantry, with supporting artillery and engineer units. The heavily mechanized Soviet force, with or without supporting airmobile forces, could sweep rapidly through the Basin and onward into the Gansu Corridor and North Central China, leaving a number of lesser objectives for neutralization by second echelon forces. Depending on which of the three avenues were to be used, likely initial objectives would be airfields at or near Altay (Altai), Fuyun (Koktokay), Karamay (Karamai), Tacheng, Yining, and Urumqi, as well as the airfield at Hami (Kumul), on the Trans-Xinjiang Railroad and highway, about 500 kilometers (300 miles) east-southeast of Urumqi on the direct approach to the Corridor. Urumqi itself, as Xinjiang's only major manufacturing, transportation, and population center, would be a likely initial objective. Other objectives in the region would likely include oil fields, other air fields to the south, and elements of the Chinese nuclear establishment, including uranium mines, gaseous diffusion works, nuclear test sites, and missile ranges in the vicinity of Lop Nur (Lop Nor).

The region's climate and weather could have some adverse effect on a well-equipped Soviet invasion force. Precipitation throughout the region is light, as already noted, and Soviet wheeled and tracked vehicles are designed to handle snow at far greater depths than to be found in the region at any time of the year. To the south, however, the shifting sand dunes of the Taklimakan Desert are a considerable obstacle to vehicular traffic of any type, because of poor trafficability and the tendency of the sand to penetrate and foul machinery.[7] Strong winds during the late winter and spring throughout the whole of North China raise periodic dust storms, especially hazardous to helicopters. Availability of water would be a logistical problem, especially in late winter.

In addition to the three routes through the Junggar Basin, a possible

secondary invasion route lies through the 11,600 foot Turugart Pass in the Tian Shan, to the airfield at Kashi (Kashgar), and then generally via the roads along the northern and southern rims of the Tarim Basin. Such a route would be more difficult, because of the high altitudes involved, and would probably be secondary to any of the other three.

Once through the Junggar Basin, the natural axis of advance would lead into the Gansu (Kansu) Corridor. This narrow strip, averaging less than 100 kilometers wide, lies between the towering Qilian (Ch'i-lien) Shan range and what westerners generally refer to as the Gobi Desert. It runs generally southeast from west of Yumen (Laojunmiao), China's first major oil field, for about 800 kilometers (500 miles) through central Gansu Province to about 150 kilometers (90 miles) north of Lanzhou (Lanchow), the provincial capital and a major industrial and transport center.

The Qilian Shan average about 13,000 feet elevation and several of the highest peaks are in the vicinity of 17,000 feet. Snow-fed streams sweeping down from the mountains have created a string of about ten oases, ranging in size from 200 to 1500 square kilometers (75 to 550 square miles), before dying out in the arid deserts comprised mostly of gobi (in Mongolian, meaning coarse gravel and rock debris).[8] The streams have formed deep, narrow valleys in the mountainsides which become shallower and less of an obstacle as the streams flow farther away from their sources. For many centuries, in fact since the beginning of Chinese history, the level alluvial ground and plentiful water supply in the lower valleys have permitted intensive cultivation. Only two of the streams flow (intermittently) more than 100 to 150 kilometers (60 to 90 miles), one feeding into two salt lakes near the Mongolian border and the other flowing west-northwest past Anxi (Anshi) into the wastes of eastern Xinjiang. None of the streams present appreciable obstacles to mechanized movement.

In ancient times, the oases along the corridor provided shelter and sustenance for caravans moving along the old Silk Road. Nowadays, the major highway and rail links to Xinjiang traverse the length of the Corridor, as does a major oil pipeline connecting the fields at Yumen with the large refinery at Lanzhou. At the southeastern end of the Corridor, the gobi gradually gives way to the relatively fertile, but easily eroded, loess-covered terrain of eastern Gansu, Shaanxi (Shensi), and Shanxi (Shansi). Here, the general landscape becomes one of steep-sided valleys, deep gullies, and cliffs, all of which present obstacles to vehicular movement sufficient to cause it to be confined to narrower established channels.[9]

Between the Corridor and Lanzhou lie the Wushaoling (Wu-chiao Ling), an eastern extension of the Qilian Shan/Nan Shan complex, with peaks over 14,000 feet high. The railroad and highway traverse this range through a narrow (one kilometer or less) 9000-foot high pass, 4000 feet above the Corridor and the upper Huang Ho (Yellow River) Valley on the opposite side.

In summary, a Soviet invasion force could use the routes described--through the Junggar Basin and the Gansu Corridor--to strike at the Chinese heartland. Forces in this region would also sever Xinjiang and the Tibetan highlands from Chinese administrative control. And, though it is generally considered that such an action would constitute a secondary attack, there are important objectives within the area itself.

Central Mongolia. (Figure 3) Though technically separating the two powers along more than 3,000 miles, this segment of the border is not well defined by geographical features. Moreover, in view of its entrenchment within the Soviet orbit, Mongolia cannot be considered a buffer between the Soviet and Chinese states.

The border regions vary from the high grasslands and occasional coniferous


MONGOLIA
YELLOW SEA
NORTH
CHINA
PLAIN
ORDOS
DESERT

forests of the Altay range along the western reaches, to the gobi of the several deserts which westerners collectively call the Gobi Desert, and to the grasslands, interspersed with swamps and marshes at the edge of the western foothills of the Da Hinggan (Ta Khinghan, or Greater Khingan) mountains at the extreme eastern end.

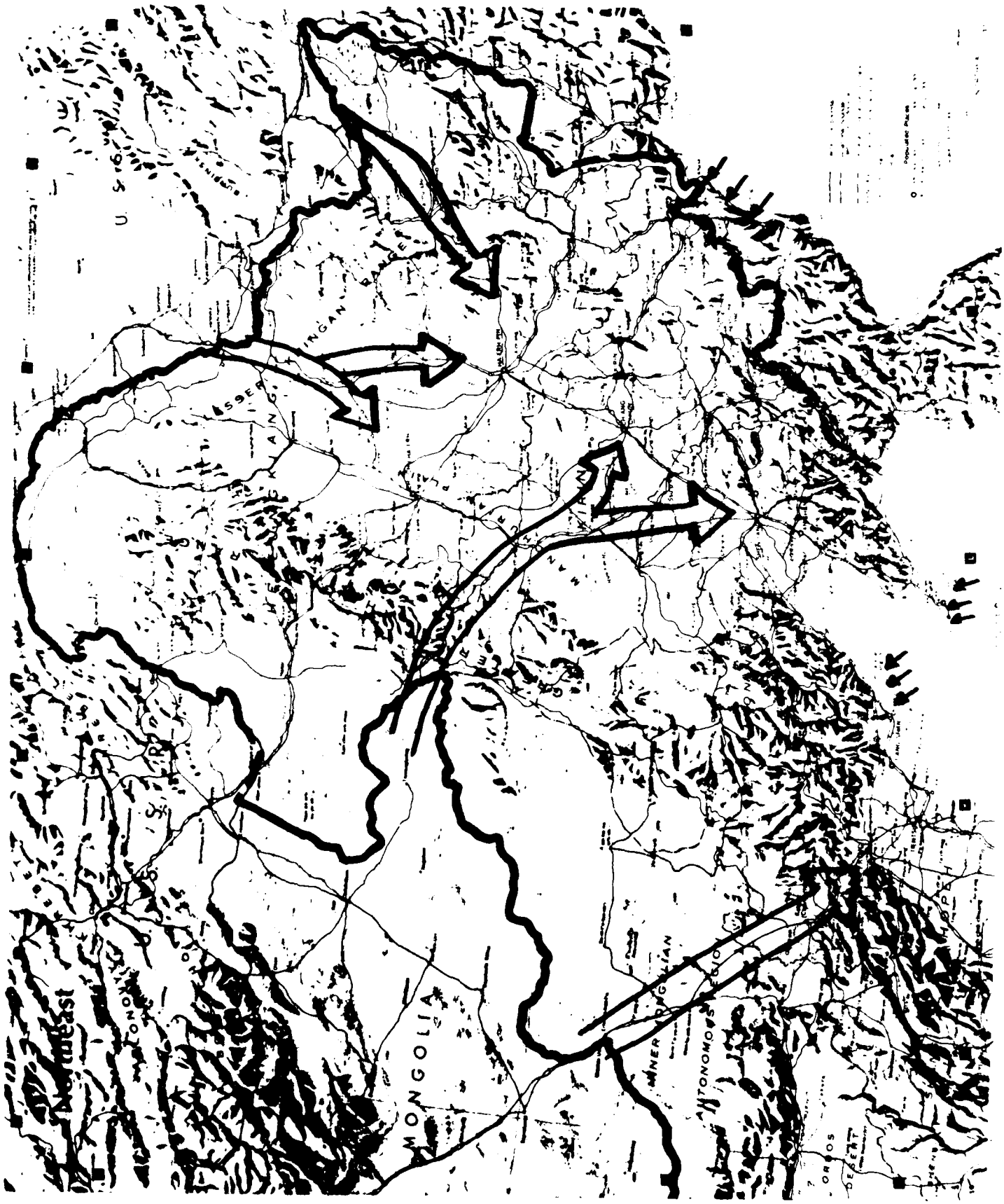
Soviet terrain in the region surrounding Lake Baikal and the terrain of central and northern Mongolia are rugged and mountainous, leaving the Sino-Mongolian border region with one principal conventional invasion route: Ulan Ude to Ulan Bator, across the Chinese frontier at Erenhot (Erh-lien-hao-t'e), then along diverging axes to Beijing and through Shanxi Province to Taiyuan (T'ai-Yuan). The border region along this approach lies in the Gobi Desert, which straddles the boundary between Mongolia and the Nei Monggol (Inner Mongolia) Autonomous Region. The Gobi desert system is one of the largest in the world, varying in width from three to six hundred miles, and over 1,000 miles long. It is comprised of both rock desert (coarse gravel and wind eroded shingle and rock debris) and sand dunes, an accumulation of fine sand constantly shifted by the prevailing wind patterns. Since these winds are generally from the north, sand dunes have accumulated mainly in the south. They present obstacles to vehicular traffic which may be easily avoided because of the vastness of the region.

Inner Mongolia, on the whole, has one of the driest climates of any region of China. In the area under discussion, annual precipitation is between 3 and 10 inches, most of which falls in July and August. The winter temperatures are comparable to those of North Dakota, though snowfall is considerably less. The entire region, especially in late winter and early spring, is a land of perpetual wind, with a predominance of winter cyclones. As a result the region averages about 3,000 hours of sunshine per year, the highest average in China.

The main obstacle to military operations along this invasion route stems from weather conditions in the Gobi Desert. The potential problems with traction in desert sand dunes, and with maintenance of vehicles, aircraft, and equipment because of wind and sand, require rapid movement through the area. However, the disadvantages are offset by the fact that this avenue affords the most direct access to the Beijing-Tianjin (Peking-Tientsin) region and the North China Plain. Moreover, such disadvantages could be minimized by the use of substantial airborne/airmobile operations in the area. Such operations, launched from Mongolia, would overleap the desert and provide for direct assaults on initial objectives. Thus, airmobile or airborne assaults by Soviet forces to seize points along the rail lines Baotou (Pao-t'ou)--Dengtou (Teng-k'ou)--Yinchuan (Yin-ch'uan) along the Great Bend of the Yellow River, and Jining (Chi-ning), Datong (Ta-t'ong), Yuanping (Yuan-p'ing) on the direct line to Taiyuan, could greatly accelerate the offensive from Dzungaria toward Lanzhou, and Taiyuan, respectively. Soviet air superiority would permit much more extensive use of airborne forces than would be possible in Europe.

Northeast (Inner Mongolia and Manchuria). (Figure 4) It is generally agreed that the most important strategic region of China is the northeast, comprised (after the recent administrative reorganization) of the northeast extension of Inner Mongolia, and the provinces of Heilongjiang (Heilung-kiang), Jilin (Kirin), and Liaoning, all of which formerly comprised Manchuria, extended to the line Beijing-Tianjin. The loss of this region would severely damage or cripple the PRC through the loss of its most important industrial region. Further, it is in this region that the Chinese are most exposed militarily: threatened by Soviet ground forces directly from the west, north, east and, by amphibious operations, from the south.

Adding to the sense of tension over the area is the fact that this section


U.S.S.R.
MONGOLIA
Northwest

of the frontier, more than any other, poses a security threat to the Soviets. With many observers predicting that the Soviet Union will become a net energy importer by the mid-1980's, Soviet development of Siberian energy resources becomes an increasingly important national priority. Unresolved border claims can be used by either side as justification for military action, as was the case in the March 1969 armed clash over Chenbao Island in the Ussuri River. The threat perceived by the Soviets is not without foundation. Northern Manchuria constitutes a salient jutting into southeastern Siberia. From this salient, a modernized China, or one that had achieved a degree of military equality through outside help, could sever the Trans-Siberian Railway, threaten the as yet uncompleted BAM (Baikal-Amur Mainline) Line, and menace the Maritime province and great base at Vladivostok.

The geography of the Manchurian region is defined by low-lying mountain ranges in the west, north and east, and a vast lowland plain in the center. In the western sector, the Da Hinggan (Greater Khingan) range separates the Manchurian Plain from the Inner Mongolian Steppes, eastern Mongolia and the Soviet Union. The Greater Khingan, with elevations of up to 5,000 feet, and the Xiao Hinggan (Lesser Khingan) at the northern edge of the Manchurian Plain, with elevations of up to 2,000 feet, are sparsely populated and contain almost two-thirds of China's timber resources. These ranges do not constitute a substantial obstacle to Soviet ground forces, though the forested areas would impede movement sufficiently to require tactical consideration. The Changbai (Changpai) mountains in southeast Jilin and Liaoning provinces along the North Korean border have elevations to between three and four thousand feet. They are also well forested, although more heavily populated than the Khingans, especially in their many agricultural valleys. Between the mountains, and open to the sea only to the southwest, lies the great Manchurian Plain, China's

primary industrial heartland. Oriented in a general northeast-southwest direction, the Plain stretches about 1,000 kilometers (650 miles) and is generally 300 to 400 kilometers (200-250 miles) wide.

As China's primary industrial region, it also contains China's best developed transportation network. Its comprehensive railroad system was initiated during the years of Russian and Japanese occupation. Extensively developed by the Chinese in later years, the rail net connects all the major population centers, regional market towns, and major sources of fuel (coal and oil) and industrial raw materials. Besides improving the capacity of the basic network, the Chinese have rebuilt many of the old Japanese lines leading to the Soviet frontier and have built a number of new lines into the forested areas. However, incompatibility of the gauges of the Russian- and Japanese-built railways would be a logistical consideration for an invading force, particularly in the border areas.

East of the Lesser Khingans, in the vicinity of the junction of the Amur and Ussuri rivers, lies a large region of marshes, constituting a considerable obstacle to ground movement. Visibility can be hampered by numerous sedge tussocks up to ten feet tall, and the lack of major terrain features hampers land navigation. The Amur and Ussuri delineate the major portion of this border segment, and it is along these two rivers that the major disputes have arisen over the years.

The climate of the region resembles that of Alberta, Canada, in the Greater Khingans, Minnesota in the eastern portion, including the Plain, and Nebraska in the Beijing vicinity.

Inasmuch as this region is the most important strategically to China and, because of its geography, the most vulnerable to military seizure, it follows that the Chinese have assembled the bulk of their military formations to defend it. For this reason, and because of the Russian strategy of blitzkrieg

offensive, Soviet operations in Manchuria are most likely to be the most complex and powerful of their operations against China. For these reasons, most western observers to date have expected the Soviets to repeat the pattern of their highly successful invasion of the region in August 1945. However, the addition of a significant airmobile/airborne capability and a greatly strengthened amphibious capability could mark a significant difference in modern Soviet maneuver.

In the conventional view, a main attack would be launched from the vicinity of Zabaykalsk (immediately east of the Mongolia-USSR-PRC border tripoint), over the Greater Khingans in to the Manchurian Plain. Principal targets of this thrust would include the industrial centers of Qiqihar (Ch'i-ch'i-ha-erh) and Harbin (Ha-erh-pin). A secondary attack could be expected to be launched from the vicinity of Tamsagbulag, in the eastern salient of Mongolia, directed toward Changchun (Ch'ang-ch'un) and Jilin (Kirin). Another secondary attack staged from the area of Blagoveschchensk, across the Amur in the center of the lesser Khingans, would seize communication centers in the northern Manchurian Plain and drive south to link up with other attacking forces. An additional attack could be expected from Leninskoye, about 100 miles west of Khabarovsk on the Amur, striking southwest to seize Jaimusi (Chia-mu-ssu), thence to Harbin.

The Soviets' substantial airborne and amphibious capabilities create the possibility of a more radical departure from the World War II pattern. In such an instance, the main effort might be based on airborne, airmobile, and amphibious forces converging along the line Ulan Bator/Beijing/Tianjin, with the flanks protected by tactical nuclear and chemical firepower. Such an attack could sever Northeast China and its large defending forces from the rest of China. A secondary attack of the same nature, using as its base the road between Altay (Yoson Bulag) and Dalandzadgad in Mongolia, might block the Gansu

Corridor, thereby isolating Xinjiang and its defending forces. Given the Soviets' growing airlift capability and potential for deploying naval and amphibious forces by infiltration followed by rapid assembly, such an attack would fit the Soviet propensity for surprise and deception and could be set in motion with far fewer forces than is generally supposed.

From Vladivostok, amphibious operations could be directed as follows: (1) at the North Korean ports of Najin and Chongjin (if North Korea were to attempt to remain neutral); (2) the Liaodong (liao-tung) Peninsula to seize Luda (Dairen)-Lushun (Port Arthur); (3) the Qinhuang (Ch'in-huang) littoral to seize Tianjin and drive on Beijing. In the latter two operations, airborne troops could play a significant role. Furthermore, depending on political conditions, the Soviets might be accorded the right to transit their forces across North Korean territory consolidating their control of the Yellow Sea. Seen from the perspective of Sino-Soviet hostilities in the region, the significance of North Korea is apparent.

In the generally accepted sense, the Soviet scheme of attack in this area would be rapid seizure of key communication centers in the Manchurian Plain, seizure of the Beijing-Tianjin axis (in coordination with the attack launched from Ulan Bator across the Mongolian border), and destruction of the combat effectiveness of Chinese main force and local force units. The Soviets cannot afford to become involved in a stalemate with the Chinese, nor can they accept the prospect of a long, drawn-out campaign. Therefore, the Soviets may be expected to attack with overwhelming force and not hesitate to use tactical nuclear weapons when suitable targets and circumstances appear.

CONCLUSIONS

The foregoing discussion is based on the assumption that the USSR possesses the military capability and the will to complete a military conquest

and occupation of that part of China necessary to cripple China's development to superpower status. Should the Soviet leadership become convinced that the PRC could pose a dangerous, serious, offensive military threat to the USSR, pressures for an attack on China could build rapidly and irresistably. Time favors the Chinese, at least insofar as modernization of their obsolete armed forces is concerned.

The Soviet attack need not have as its goal complete occupation of China (indeed, this would create an unacceptable drain on Soviet military resources). The Chinese threat could be controlled, perhaps indefinitely--and valuable resources gained--by seizure of Manchuria and neutralization of the Xinjiang-Uygur region, seat of China's nuclear establishment. In its present military circumstances, China would be unable to counterattack without large-scale outside aid.

The defense problems imposed on the Chinese military by the vastness of the country and lack of adequate interior lines might be compounded by the new dimension airmobility adds to the modern battlefield. As it stands, airmobile technology provides the Soviets a decided advantage in maneuverability and permits the control of larger areas by airmobile units. In the present force relationship, terrain, climate, and weather will not impose decisive limitations on the Soviet decision of whether to attack China. Given this existing force relationship, geography enables the Soviet Union to launch devastating attacks against the People's Republic of China in any region along their mutual border, or in several regions, at any time of the year.

ENDNOTES

1. This is a Maoist concept by which the enemy is to be lured deep within China and then submerged in a "human sea" of guerrilla warfare.

2. Military Balance: 1979-1980, London: International Institute for Strategic Studies, 1979, page 59. In addition, says the source, "The naval and air elements of the PLA have only about one-seventh of the total manpower, compared with about a third for their counterparts in the Soviet Union, but naval strength is increasing, and the equipment for both arms is steadily being modernized. The PLA, essentially a defensive force, lacks facilities and logistic support for protracted large-scale operations outside China." The Chinese have developed a limited intercontinental ballistic missile (ICBM) capability, as evidenced by successful tests in the Pacific during May 1980. The tested missile, liquid propelled, is capable of reaching targets in the Soviet Union, including Moscow, or the west coast of the United States, though it is likely that it will take considerable time before the Chinese could have either sufficient numbers or a sophisticated enough weapon to penetrate Soviet antiballistic missile (ABM) defenses around Moscow, the most critical potential target for the Chinese missiles.

3. Ibid., page 10.

4. The Coming Decline of the Chinese Empire, New York: Times Book, 1979.

5. Where they differ, both Pinyin and Wade-Giles spellings are used to attempt to clarify a thoroughly confused situation wherein four or five different names may appear for the same geographic location, depending on date and source of the map.

6. Rick Gore, "Journey to China's Far West," National Geographic, 157 (3), March 1980, page 322.

7. According to CIA's People's Republic of China Atlas, 1971, page 25, "the most efficient form of surface transport for such terrain" is the camel.

8. The Chinese divide what we call the Gobi Desert into a number of lesser deserts, such as the Tennger (T'eng-ko-li), Badain Jaran (Pa-tan-chi-lin), and Ulan Buh (Ala Shan), to name only a few.

9. The yellow fine-textured loessial soil has been deposited for eons by the prevailing winds of North China which raise huge sandstorms off the deserts in late winter and early spring. In some locations, the loess reaches depths of hundreds of feet but, during the extended dry periods especially, it is subject to the same forces that deposited it, mainly because continuous abuse has caused the soil to lose its original vegetation (grass and timber), with resultant degradation and erosion.

BIBLIOGRAPHY

"All Quiet on China's Northwestern Front." Christian Science Monitor, July 16, 1979, page 3.

An, Tai-sung. The Sino-Soviet Territorial Dispute. Philadelphia: Westminster Press, 1973.

Andrews, Roy Chapman. Across Mongolian Plains. New York: D. Appleton & Co., 1921.

Beskrovny, L., Khvostov, T., Tikhvinsky, S. "On the History of the Formation of the Russo-Chinese Border." International Affairs (Moscow), July 1972, pages 11-22.

Boggs, Samuel Whittemore. International Boundaries. New York: Columbia University Press, 1940.

Bonds, Ray (ed.) The Chinese War Machine. London: Salamander, 1979.

Borg, R. G. Sino-Soviet Relations: The Future. Department of National Defense, Canada, ORAE Extra-mural Paper No. 1, March 1978.

Carpenter, Clifton C. "The Inner Asian Frontier: A Cradle of Conflict." Strategic Review, No. 5, Winter 1977, pages 90-99.

Carruthers, Douglas (Alexander Douglas Mitchell Carruthers). Unknown Mongolia: A Record of Travel and Exploration in North-West Mongolia and Dzungaria. 2 vols., Philadelphia: Lippincott, 1914.

"Caught in the Power Web: Border Disputes." Far Eastern Economic Review, Vol. 84, June 17, 1974, pages 31-33.

Clubb, O. Edmund. China and Russia: The "Great Game." New York: Columbia University Press, 1971.

Clubb, O. Edmund and Seligman, Eustace. The International Position of Communist China. Dobbs Ferry, NY: Oceana Publications, 1965.

Clubb, O. Edmund. "The Sino-Soviet Frontier." Military Review, No. 44, July 1964, pages 3-13.

Cole, J. P. and German, F. C. A Geography of the USSR. Totowa, NJ: Rowman & Littlefield, 1971.

Conolly, Violet. Beyond the Urals. New York: Oxford University Press, 1967.

Cukwurah, A. O. The Settlement of Boundary Disputes in International Law. New York: Oceana Publications, 1967.

Dallin, David J. The Rise of Russia in Asia. New Haven, CN: Yale University Press, 1949.

Dallin, David J. Soviet Russia and the Far East. New Haven, CN: Yale University Press, 1948.

de Keijzer, Arne J. and Kaplan, Fredric M. The China Handbook: A Traveler's Guide to the People's Republic of China. Philadelphia: J. B. Lippincott Co., 1979.

Dewdney, John C. A Geography of the Soviet Union. 2d ed. New York: Pergamon Press, 1971.

Doolin, Dennis J. Territorial Claims in the Sino-Soviet Conflict: Documents and Analysis. Stanford, CA: Hoover Inst., Stanford University Press, 1965.

Filchner, Wilhelm. *E. O. Lorimer, tr.* A Scientist in Tartary: From the Hoang-Ho to the Indus. London: Faber & Faber, Ltd., 1939.

Gittings, John. "S-S Border: The White Hordes." Far Eastern Economic Review, Vol. 64, April 3, 1969, pages 17-18.

Gore, Rick. "Journey to China's Far West." National Geographic, Vol. 157 (3), March 1980, pages 292-331.

Gray, Colin S. The Geopolitics of the Nuclear Era: Heartland, Rimlands, and the Technological Revolution. New York: Crane, Russak (Nat'l Strat Info Ctr), 1977.

Hedin, Sven Anders. Riddles of the Gobi Desert. New York: E. P. Dutton & Co., 1933.

Hedin, Sven Anders. The Silk Road. New York: E. P. Dutton & Co., 1938.

Hedin, Sven Anders. Through Asia. 2d ed. London: Methuen & Co., 1899.

Hedin, Sven Anders. The Wandering Lake. New York: E. P. Dutton & Co., 1940.

Hinton, Harold C. "Conflict on the Ussuri: A Clash of Nationalisms." Problems of Communism, No. 20, January/April 1971, pages 45-59.

Hoeber, Frances P. et al. Boundary Conditions of the Sino-Indian Conflict. Menlo Park, CA: Stanford Research Inst., 1963.

Hsieh, Chiao-min. Atlas of China. New York: McGraw Hill, c1973.

Hsiung, James C. Law and Policy in China's Foreign Relations. New York: Columbia University Press, 1972.

Hu, Chang-tu. China: Its People, Its Society, Its Culture. New Haven: Human Relations Area Files, Inc., 1960.

International Institute for Strategic Studies. The Military Balance 1979-1980. London: 1980.

Izvestiya Russkogo Geografischeskogo Obschestva (News of the Russian Geographic Society), Vol. 56 (1924), #2. Moscow: 1925.

Izvestiya Gosudarstvennogo Russkogo Geograficheskogo Obstchesva (News of the Governmental Russian Geographic Society), Vol. 57 (1925), #1. Leningrad: 1925.

Kaplan, Fredric M., Sobin, Julian M., and Andors, Stephen. Encyclopedia of China Today. Updated ed. New York: Harper & Row, 1980.

Karan, P. D. "The Sino-Soviet Border Dispute." Journal of Geography, Vol. 63, 1964, pages 216-222.

Keesing's Research Report. The Sino-Soviet Dispute. New York: Scribner's, 1969.

Liu, En-lan. "The Ho-si Corridor." Economic Geography, Vol. 28 (1), June 1952, pages 51-56.

Liu, Leo Yueh-Yun. China as a Nuclear Power in World Politics. New York: Taplinger Publishing Co., 1972.

Lobanov-Rostovsky, Prince A. Russia and Asia. Ann Arbor: Geo. Wahr Publishing Co., 1951.

Louis, Victor. The Coming Decline of the Chinese Empire. New York: Times Books, 1979.

Lydolph, Paul E. Geography of the USSR. 2d ed. New York: John Wiley & Sons, 1970.

Marks, Donald M. "The Ussuri River Incident as a Factor in Chinese Foreign Policy." Air University Review, Vol. 22, July-August 1971, pages 53-63.

Maxwell, Neville. "A Note of the Amur-Ussuri Sector of the Sino-Soviet Boundaries." Modern China, No. 1, January 1975, pages 116-126.

Mayer, Peter. Why the Ussuri? Reflections on the Latest Sino-Soviet Fracas. Waltham, MA: Westinghouse Corp. Advanced Studies Group, 1969.

Middleton, Drew. "Soviet Has Many Choices on China Border." The New York Times. February 20, 1979, page 6.

Mirov, Nicholas T. Geography of Russia. New York: John Wiley & Sons, 1951.

Moore, Harriet L. Soviet Far Eastern Policy, 1931-1945. Princeton, NJ: Princeton University Press, 1945.

Murphy, George G. S. Soviet Mongolia: A Study of the Oldest Political Satellite. Berkeley: University of California Press, 1966.

Murzayev, Ed M. Geograficheskiye Issledovaniya Mongol'skoy Narodnoy Respubliki (Geographic Proceedings of the Mongolian People's Republic). Moscow: Akademiya Nauk SSSR (Academy of Science of the Soviet Union), 1948.

Nitze, Paul H. "Assuring Strategic Stability in an Era of Detente." Foreign Affairs, Vol. 54(2), January 1976, pages 207-232.

Obruchev, Vladimir Afanas'evich. Vostochnaya Mongoliya (Eastern Mongolia). Moscow: Akademiya Nauk SSSR (Academy of Science of the Soviet Union), 1947.

Peltier, Louis C. Bibliography of Military Geography. Washington, D.C.: Military Geography Committee, Association of American Geographers, April 1962.

Peltier, Louis C. and Pearcy, G. Ethel. Military Geography. Princeton: D. Van Nostrand Co., Inc., 1966.

Petersen, Phillip A. "Possible Courses of a Military Conflict Between the USSR and the PRC." Military Review, No. 57, March 1977, pages 28-37.

Prescott, John Robert Victor. The Geography of Frontiers and Boundaries. Chicago: Aldine Publishing Co., 1965.

Prescott, John Robert Victor. Political Geography. New York: St. Martin's Press, 1972.

Przybyllok, Erich and Walker, K. Dr. Fitchner's Geografische Ortsbestimmungen und Hohenmessungen in Zentralasien (Dr. Fitchner's Geographic Positions and Altitude Measurements in Central Asia) from Schriften der Konigsberger Gelehnten Gesellschaft Naturwissenschaftliche Klasse 6 Jahr Heft 8 (Writings of the Konigsberg Learned Society Natural Science Class 6 Yearbook vol. 8).

Roucek, Joseph S. "Geopolitics of the USSR." American Journal of Economics and Sociology. Vol. 10, October 1950, pages 17-26 and July 1951, pages 153-159.

Rupen, Robert A. "Mongolia in the Sino-Soviet Dispute." China Quarterly. October-December No. 16, pages 75-85.

Schwarz, Henry G. Leadership Patterns in Chinese Frontier Regions. Bellingham, Washington: Western Washington State College, 1964.

Shabad, Theodore. Geography of the USSR: A Regional Survey. New York: Columbia University Press, 1951.

Stein, Sir Mark Aurel. Innermost Asia. 2 vols. New York: Oxford University Press, 1928.

Stein, Sir Mark Aurel. A Journey of Geographical and Archaeological Exploration in Chinese Turkestan. Washington: Smithsonian Inst. (Annual Report), 1903.

Stein, Sir Mark Aurel. On Ancient Central-Asian Tracks: Brief Narrative of Three Expeditions in Innermost Asia and North-Western China. London: Macmillan & Co., 1933.

Robinson, Thomas W. "The Sino-Soviet Border Dispute: Background, Development, and the March 1969 Clashes." American Political Science Review, Vol. 66 (4), December o972, pages 1175-202.

Times Atlas of China. New York: Quadrangle/NYT Book Co., 1974.

Thorp, James. Geography of the Soils of China. Nanking, China: National Geological Survey of China, 1936.

Tang, Peter S. H. "Sino-Soviet Territorial Disputes: Past and Present." Russian Review, Vol. 28, No. 28, October 1969, pages 403-15.

Tregear, T. R. A Geography of China. London: University of London Press, 1965.

Trenak, Daniel. "China's New Frontier Trouble: Border Area of Sinkiang." Far Eastern Economic Review, Vol. 42, October 10, 1963, pages 60-62.

US Central Intelligence Agency. People's Republic of China Atlas. Washington, DC: Government Printing Office, 1971.

US Department of the Army. US Army Intelligence and Security Command. US Army Intelligence and Threat Analysis Center. Soviet Army Operations. April 1978.

Warner, Dennis. "China's New Roads: Where Do They Lead?" Reporter, No. 29, September 26, 1963, pages 31-33.

Watson, Francis. The Frontiers of China. New York: Praeger, 1966.

Whitney, Joseph B. R. China: Area, Administration, and Nation Building. Chicago: University of Chicago Department of Geography, 1970.

Zhonghua Remin Gong Heguo Fen Sheng Diruji, (Atlas of Provinces of the People's Republic of China), Beijing: Map Publishing House, 1977. Hanyu Pinyin Edition.

Maps

Central Intelligence Agency, "China", No. 504070 5-7A (542557)-Pinjin edition, Scale 1:5,000,000.

DISTRIBUTION

Office of the Deputy Chief of Staff for Operations and Plans, DA	10
US Army Command and General Staff College	1
Naval War College	1
Air War College	1
National War College	1
Defense Attache, Tokyo	1
Defense Attache, Seoul	1
Defense Attache, Peking	1
Defense Liaison Office, Hong Kong	1
US Army Western Command	2
US Army Japan	2
500th MI Group, Japan	2
Headquarters, US Eighth Army	2
Headquarters, 25th Infantry Division	1
Headquarters, 9th Infantry Division	1
Headquarters, 101st Airborne Division	1
Headquarters, US Marine Corps (G-3)	2
US Army War College	
DNISS	2
DCS	2
DMSPO	2
Library	2
Defense Technical Information Center	2
434th Military Intelligence Detachment	10

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER ACN 81047	2. GOVT ACCESSION NO. AD-A102 820	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MILITARY GEOGRAPHY OF THE SINO-SOVIET BORDER		5. TYPE OF REPORT & PERIOD COVERED Special Report 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) 434th Military Intelligence Detachment (Strategic)		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Strategic Studies Institute US Army War College Carlisle Barracks, PA 17013		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE 31 July 1981 13. NUMBER OF PAGES 37
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

People's Republic of China; Soviet Union; military geography; military operations.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The purpose of this report is to provide information concerning the military geography of the Sino-Soviet border. As the term implies, "military geography" relates to the effect of such factors as terrain and climate on the conduct of military operations. The perspective of this report mainly involves a potential strategic attack by Soviet forces on the People's Republic of China.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

END

DATE
FILMED

9-81

DTIC